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EXAMINER

LOFFREDO, JUSTIN E

ART UNIT	PAPER NUMBER
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4157

NOTIFICATION DATE	DELIVERY MODE
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09/02/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/598,436	Applicant(s) OH ET AL.	
	Examiner JUSTIN LOFFREDO	Art Unit 4157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-41 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/30/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claim 22** is objected to because of the following informalities: where applicant discloses "...continuously transferring said buffer material through the inner wall...", "said buffer material" appears to be misplaced where "said cooling agent" should be indicated. (Reference p.10, L 12-14 in the specification of the present invention)
Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 38** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "a processing position" in claim 38 is a relative term which renders the claim indefinite. The term "processing position" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Since the claimed "processing position" is not clearly defined, the arrangement of the temperature sensor in the claim is unknown.

Claim Rejections - 35 USC § 112 & 35 USC § 101

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claim 41** provides for the use of the cooling equipment, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 41 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 21, 24, 35 and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648).

Consider claim 21. Roslonski discloses a cooling device (Figure 2) with an inner compartment **22** that is a cooling space that receives a refrigerant, a first enclosure **20** that is an inner wall that defines the limits of cooling space **22**, a second enclosure **30** that is an outer wall, an outer compartment **32** that is an intermediate space between the outer **30** and inner wall **20**, and tubing **15** through which refrigerant flows that is a

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cooling agent supply line. A plurality of holes **36** are formed in the inner wall **20** through which cooling space **22** and intermediate space **32** are in fluid flow communication.

(Col. 2, L 38-71)

Roslonski does not disclose wherein the cooling agent supply line empties into the intermediate space.

Rode teaches a pressurized liquid nitrogen cooling agent connected to a perforated tube **66** that empties into plenums **56** and **58**, which are intermediate spaces defined by the outer wall of enclosure **42** and the inner walls **52** and **54**. (Col. 3, L 11-47; Figure 3)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski above by providing the arrangement as taught by Rode since the perforations in the inner wall would allow the cooling agent to enter the cooling space from the intermediate space.

Consider claim 24. Roslonski discloses a plurality of holes **36** that are formed in the inner wall **20**. (Col. 3, L 58-59) In the present invention, the applicant discloses the inner wall being substantially grid-shaped so that the cooling agent located in the intermediate space can outgas into the cooling space without substantial hindrance. In the invention of Roslonski, the plurality of holes **36** in the inner wall **20** would serve the same purpose for a cooling agent flowing in the intermediate space **32**. (Col. 3, L 58-60)

Consider claim 35. Roslonski discloses the claimed invention as recited above; however, Roslonski does not disclose wherein a cold gas outlet for the cooling agent

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and cold gas to escape from the cooling space is arranged on an upper side of the cooling space.

Rode teaches a pressure relief valve **80** that is connected to the enclosure **42** on the upper side to allow excess pressure of the pressurized liquid nitrogen cooling agent and cold gas in the air flow created by fan **26** to be relieved through aperture **82**. (Col. 3, L 5-7 & 36-40; Figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski above by providing the arrangement as taught by Rode in order to relieve pressure in the cooling device as needed.

Consider claim 40. Roslonski discloses the claimed invention as recited above; however, Roslonski does not disclose when the cooling agent is liquid nitrogen.

Rode teaches a liquid refrigerant, such as liquid nitrogen. (Col. 3, L 2-3)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski above by providing the liquid nitrogen refrigerant as taught by Rode because liquid nitrogen is commonly used as a refrigerant in many applications since it is compact, readily transported and able to maintain temperatures below the freezing point of water.

7. **Claims 22, 23, 25 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) as applied to claim 21 above, and further in view of Barthel (US Patent No. 4,481,779).

Consider claims 22 and 23. Roslonski as modified above discloses the claimed invention as recited above; and Roslonski further discloses a porous insulating material **34** that is a buffer material in the intermediate space **32**. (Col. 2, L 38-71)

Roslonski as modified above fails to disclose when the cooling agent is transferred from the buffer material through the inner wall and into the cooling space.

Barthel teaches that in order to maintain the lowest temperature in the cavity **31** which is a cooling space, the core **28** that defines the inner wall must be permeable to the nitrogen gas that boils off from the liquid nitrogen stored in the glass fiber matrix **30** that is the buffer material. (Col. 5, L 30-33; Figure 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Barthel in order to be able to help maintain a low temperature in the cooling space by transferring the cooling agent from the buffer material into the cooling space.

Consider claims 25 and 26. Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose the inner wall made of a thermally conductive material.

Barthel teaches that the inner wall **28** can be made of any material composition, e.g. metal or plastic. (Col. 5, L 26-27) One of ordinary skill in the art will realize that metal is an example of a thermally conducting material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the

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arrangement as taught by Barthel since a metal or other structurally stable material will retain its form after being repeatedly subjected to cold shocks at liquid nitrogen temperatures.

8. **Claims 27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) as applied to claim 21 above, and further in view of Palma (US Patent No. 3,618,336).

Consider claims 27 and 28. Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose the cooling space being vat shaped where the cooling agent supply line has a cooling agent distributor along the upper circumferential edge to introduce a cooling agent into the intermediate space in a distributed manner over the length of the cooling agent distributor.

Palma teaches a cooled coffin structure where the wall of the coffin is hollow and passages are provided which are cooling agent distributors communicating with the interior of the hollow wall and the interior of the coffin, which is the cooling space, and means such as a blower or fan are provided outside of the coffin to continuously circulate air which is a cooling agent through the hollow walls so that a stream of cooling agent flows into the intermediate space and then into the cooling (Col. 1, L 46-55; Col. 2, L 13-15). A channel **20** that is a cooling agent supply line extends circumferentially along the internal sides of the wall portions **14**. (Col. 1, L 46-55; Col. 2, L 13-15)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the

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arrangement as taught by Palma in order to distribute the cooling agent throughout the entire cooling space.

9. **Claims 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) as applied to claim 21 above, and further in view of Binder (US Patent No. 5,601,143).

Consider claims 29 and 30. Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose a heating element arranged under a perforated heating plate in a cooling space.

Binder teaches electric heating elements **44** over the base and two vertical side regions of chamber **26**, which are heating plates. There are apertures **38** which are perforations distributed in a grid pattern in the side walls **18**, behind which are the heating elements **44**. (Col. 3, L 56-59; Col. 4, L 12-15; Figure 4) The purpose of the apertures is to allow for the circulation of gas, which as disclosed in Binder states that circulating air arrives in the useful storage volume, which is the cooling space, via the inlet gap **42** and the apertures **38**. (Col. 4, L 53-56)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Binder in order to control the temperature of the circulating air in the cooling space.

With regard to the position of the heating elements beneath or behind perforated side walls recall *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) where claims to a hydraulic power press which read on prior art except with regard to the position of

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the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.

10. **Claims 31-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) as applied to claim 21 above, and further in view of Walker et al. (US Patent No. 5,976,871).

Consider claims 31-33. Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose a removable protective bell that is at least partially transparent and has a sample lock.

Walker et al. teaches a protective enclosure **23** that is a bell, that has a transparent door **33** and a drying cavity **31** in the enclosure which is a sample lock separated from the outside environment. (Col. 5, L 15-17, 25 & 27; Figure 1

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Walker et al. to protect the biological samples and allow them to be arranged or prepared in situ without contact with the outside environment.

With regard to the bell being removable recall *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) where the claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.

Consider claim 34. Roslonski as modified above discloses the claimed invention as recited above; and Roslonski further discloses conduits **48** which are cold gas outlets on the bottom of enclosure **30** through which cooling agent and cold gas that has come from cooling space **22** can escape. In this case, the enclosures **20** and **30** and the removable cover **24** form a covering which is a bell around the cooling space. (Col. 2, L 47, 53; Col. 3, L 13-15)

11. **Claim 36 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) as applied to claim 21 above, and further in view of Weng (US Patent No. 6,845,628).

Consider claim 36. Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose a temperature sensor in the cooling space, a controllable cooling agent valve or a temperature control device connected from an input to the temperature sensor and from an output to the cooling agent valve.

Weng teaches a temperature control device with a temperature sensor that senses temperature within a refrigeration apparatus. The temperature control device has a first flow valve which is a cooling agent valve that can selectively increase or decrease the flow of refrigerant in response to temperature sensed by the sensor. The temperature sensor also contains a controller that controls the valve in response to temperature sensed. (Col. 2, L 2-14)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Weng as a means to monitor and provide a reliable control

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for the temperature within the cooling space of the device so that the temperature is appropriate for the biological samples.

Consider claim 39. Roslonski as modified above discloses the claimed invention as recited above; and Roslonski further discloses a cooling device with a cooling space **22** that receives a refrigerant, and a plurality of holes **36** that are formed in an inner wall **20** through which the cooling space **22** and intermediate space **32** are in fluid flow communication. (Col. 2, L 38-71) Figure 2 illustrates that the refrigerant that is a cooling agent flows from the tubing **15**, into the cooling space **22** and through holes **36** into the intermediate space **32**. Therefore, no cooling agent lake forms in the cooling space **22**.

Roslonski as modified above fails to disclose a temperature control that adjusts a supply of cooling agent.

Weng teaches a temperature control device with a temperature sensor that senses temperature within a refrigeration apparatus. The temperature control device has a first flow valve which is a cooling agent valve that can selectively increase or decrease the flow of cooling agent in response to temperature sensed by the sensor. (Col. 2, L 2-14)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Weng as a means to monitor and provide a desired amount of cooling agent to the device for controlling the temperature within the cooling space so that the temperature is appropriate for the biological samples.

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12. **Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over Roslonski (US Patent No. 3,595,030) in view of Rode (US Patent No. 6,044,648) and further in view of Weng (US Patent No. 6,845,628) as applied to claim 36 above, and further in view of Ali (US Patent No. 5,546,756).

Roslonski as modified above discloses the claimed invention as recited above; however, fails to disclose the temperature control device connect by a pulse generator to the cooling agent valve, where the pulse generator opens and closes the valve.

Ali teaches a control system for generating a pulse width modulated control signal for an electrically operated refrigerant valve, where the controller receives inputs from temperature sensors. (ABST; Col. 5, L 35-37)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Roslonski as modified above by providing the arrangement as taught by Ali in order to provide a means to control the amount of cooling agent that flows through the valve and into the cooling space.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hoffmeister (US Patent No. 4,680,945) discloses a cooling chamber with an intermediate area between the working chamber and cooling vessel, which has apertures in the base wall to allow vaporized coolant to flow into the work chamber. Smith et al. (US Patent No. 6,968,711 B2) disclose temperature controlled shipping containers with a liquid supply apparatus.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN LOFFREDO whose telephone number is (571) 270-7114. The examiner can normally be reached on M - F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (571) 272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEL
20_AUG_2008
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Primary Examiner, Art Unit 3748